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WATER SUPPLY AND SEWAGE DISPOSAL COMMUNITY OF MATTICE TOWNSHIP OF EILBER & DEVITT

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Director
Northeastern Region

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WATER SUPPLY AND SEWAGE DISPOSAL

COMMUNITY OF MATTICE

TOWNSHIP OF EILBER & DEVITT

June 1975
Municipal & Private Abatement
Timmins District
Northeastern Region

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INTRODUCTION

A pollution survey was conducted by the Ministry of the Environment in the community of Mattice during the week of June 16 to June 20, 1975.

Mattice is located on Highway #11 on the east bank of the Missinaibi River in the Township of Eilber in the District of Cochrane. The population of the townsite was 1330 in January of 1975.

This survey was undertaken to locate and record all significant sources of water pollution within the municipality and to check the quality of the drinking water supplied by six privately owned water works systems all of which obtain their water from the Missinaibi River. A "Boil Water Order" has been in effect for all of the systems since 1954 when the Porcupine Health Unit was expanded to include this area. The community of Mattice can be separated into two sections with respect to sewage disposal;

(1) an area south of the Canadian National Railway which is serviced with a sanitary sewerage system and communal septic tank,

(2) an area north of the railway where homes have private septic tank and tile bed systems.

The problems with each of the two sections will be discussed in this report.

The assistance provided during the survey by the Ministry of Health Regional Laboratory in Timmins is gratefully acknowledged.

TECHNIQUE

The survey of Mattice was conducted over a four day period by three Ministry of the Environment employees. Ditches and watercourses were inspected and notes were made on the appearance of these ditches. Photographs of some of the problem areas as well as the communal septic tank and the six water works pumphouses were taken and included in the report. Routine chemical and bacteriological samples were taken at each sample point, and where oil was suspected phenol samples were taken. In the north section of the community septic tank systems were checked to determine if there was any discharge of raw or partially treated sewage.

All samples were kept in a cooler containing ice during sampling period and were later refrigerated. Bacteriological samples were packed in plastic garbage bags containing ice, put in boxes and shipped from Kapuskasing to the Ministry of Health Laboratory, in Timmins, via Blue Bird Taxi each morning. Chemical samples were kept refrigerated until the final day of the survey when they were packed and shipped to Toronto.

WATER SUPPLIES

(a) Systems

The citizens of Mattice obtain their domestic water from six separate, privately - owned water works systems, each of which uses the Missinaibi River as a supply source. A seventh system supplies water for the Fire Department and non-potable use in the arena. A map outlining the areas served by the various systems is included on the following page. These water works systems are as follows:

I Mattice Union Water Works

This water works system supplies water for twenty-six homes, two hotels, a school, a bank and a restaurant. It serves most of the north-west section of the community.

II Mattice (Fauchon) Water Works

This system serves twenty homes in the northeast section of Mattice and the east side of Five Mile Creek.

III Brunelle (formerly Ratte) Water Works

This system, located in the north-central section of the townsite, serves forty-six homes.

IV South Side (Breton) Water Works

Approximately sixty homes on the south side of the CN tracks are served by this system.

V Brisson Water Works

This water works system supplies nine homes on the west side of the community along King Street (Highway #11).

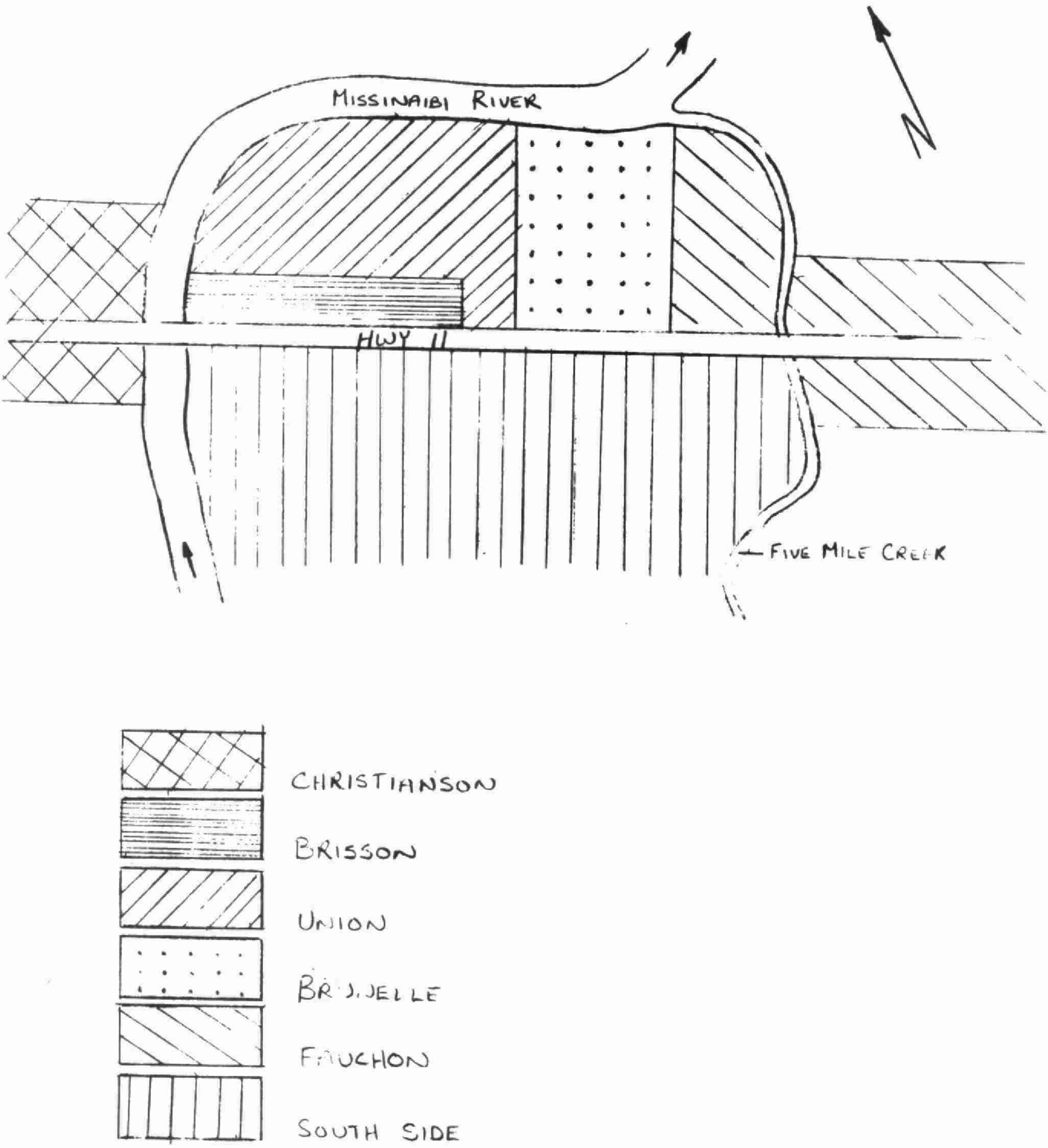
VI Christianson Water Works

This system serves twelve homes and a vacant school on the west side of the Missinaibi River.

VII Arena Pumphouse

This pumphouse supplies water for the fire department and the arena and is located at the north end of the community. The arena drinking water is obtained from the Union Water Works.

AREAS SERVED BY VARIOUS WATER WORKS SYSTEMS



Photographs of the pumphouses for the six water works systems and the areas served by each system are included in the Appendix I.

b) Bacteriological Quality

As would be expected of the water obtained directly from a river, water quality varies from season to season from these private systems, but generally bacteriological results indicate the presence of coliform organisms in the raw water. There is usually no treatment of this water before it is supplied to consumers. Bad water has been a chronic problem for the last several years in the community. The number of adverse samples consistently exceeds the allowable limit of 10 per cent annually. Chlorinators at the various pumphouses are not always in use reportedly due to the fact that the residents are not pleased with the odour of chlorine in their drinking water. There has been a history of operating problems with the chlorinators at each of these systems.

Random samples from homes receiving water from each of the six water systems were collected during the survey. The results of the bacteriological examination of these samples indicate that at that time all residences visited had coliform organisms present in their drinking water. All residences that were sampled were notified of these results and advised to boil their drinking water.

Bacteriological results for drinking water are included in Table I

TABLE I

BACTERIOLOGICAL EXAMINATION

WATER DISTRIBUTION SYSTEM WATER SAMPLES (MATTICE)

SAMPLE NO.	LOCATION	TOTAL COLIFORMS	FAECAL COLIFORMS
16-R	F. Levesque, 352 Queen St.	40	2
19-R	E. Gregoire, Lot 126 Balmoral St.	62	14
27-R	R. Coulombe, Lot 172 Queen St.	20	14
30-R	V. Kuokkanen, 186 Balmoral St.	32	2
35-R	A. Plamonden, 273 Parkview St.	20	10
36-R	M. Godard, Balmoral St.	52	8
37-R	F. Lemieux, Balmoral & 2nd St.	26	14
41-R	R. Lachance, Lot 165 Queen St.	30	6
70-R	Roland Brunelle, Lot 213 Balmoral St.	38	22
71-R	Roger Picard, Lot 171 Queen St.	30	30
72-R	Fabian Brisson, Lot 140 King St.	48	8
73-R	G. Blais, Lot 133 King St.	12	12
74-R	M. Leclerc, East Side of Bridge	20	6
75-R	R. Roussel, Melrose	12	8
76-R	G. Gagnon, Lot 100 Melrose St.	18	10
78-R	Residence, Lot 52 Melrose St.	20	6
79-R	Fauchon Water Supply at Pumphouse	26	6
80-R	Christianson, Lot 28 Con. 4	22	0
		26	6
81-R	Funnell, (Christianson Water)	6	4

Sample taken by R. E. Richard-Porcupine Health Unit June 5, 1975

A.	Chez Rosa, Brunelle Water	12	0
B.	Lachance Store, Mattice Union Water	6	0
C.	Bob's Esso, Fauchon Water	12	0
D.	Chez Fernande, South Side Water	8	0

(c) Chemical Quality

The water in Mattice is relatively soft, but has the yellowish-brown colour characteristic of northern surface waters.

Water samples were collected for chemical analysis from each home visited. The results of the analysis confirmed that iron concentrations exceeded the Ministry of the Environment's upper limit of 0.3 ppm for drinking water. The high concentration of iron in the Missinaibi River water is in the same range as in most northern surface water. The high levels of iron do not constitute a health hazard. Iron is of concern for aesthetic reasons only. It tends to precipitate as hydroxides of iron which stain laundry and porcelain fixtures.

The chemical analysis results are presented in Table 2

CHEMICAL ANALYSES OF DOMESTIC WATER SAMPLES

TABLE 2

SAMPLING POINT NO.	LOCATION	HARDNESS AS CaCO3- mg/l	ALKALINITY As CaCO3 - mg/l	IRON As Fe - mg/l	CHLORIDE As Cl - mg/l	pH AT LAB	CONDUCTIVITY umhos/cm
E-1	Christianson Water Supply, Lot 28	68	66	.75	<1	7.7	128
E-2	Christianson Water Supply, Lot 28	68	66	.85	<1	7.8	128
C3A	Christianson Water Supply, Funnell Residence	70	66	.55	<1	8.0	131
C3B	Christianson Water Supply, Funnell Residence	68	64	.50	<1	8.0	127
R-16	F. Levesque, Queen St.	68	64	.65	<1	7.6	128
R-19	E. Gregoire, Lot 126, Balmoral St.	66	62	.70	<1	7.6	127
RA-27	R. Coulombe, Lot 172, Queen St.	68	64	1.20	<1	7.6	126
RB-27	R. Coulombe, Lot 172, Queen St.	68	62	.70	<1	7.7	125
RA-30	V. Kuokkanen, Balmoral	68	64	.55	<1	7.6	127
RB-30	V. Kuokkanen, Balmoral	68	62	.50	<1	7.7	127
R-35	A. Plamondon, Parkview	68	64	.95	<1	7.6	128
R-36	M. Godard, Balmoral St.	68	62	.70	<1	7.7	127
R-37	F. Lemieux, Balmoral & 2nd Street	68	64	.80	<1	7.8	127
R-41	R. Lachance, Lot 165, Queen St.	68	64	.60	<1	7.8	128
R-70	Roland Brunelle, Lot 213, Balmoral Ave..	68	64	.75	<1	7.7	126
RA-71	Roger Picard, Lot 171, Queen St.	66	62	.85	<1	7.6	126
RB-71	Roger Picard, Lot 171, Queen St.	70	66	.85	<1	7.8	126

CHEMICAL ANALYSES OF DOMESTIC WATER SAMPLES

SAMPLING POINT NO.	LOCATION	HARDNESS As $CaCO_3$ - mg/1	ALKALINITY As $CaCO_3$ - mg/1	IRON As Fe mg/1	CHLORIDE As Cl mg/1	pH AT LAB	CONDUCTIVITY umhos/cm
RA-72	F. Brisson, Lot 140, King St.	68	66	.70	<1	7.7	127
RB-72	F. Brisson, Lot 140, King St.	68	62	.65	<1	7.7	127
RA-73	G. Blais, Lot 133, King St.	68	60	1.20	<1	7.8	126
RB-73	G. Blais, Lot 133, King St.	68	62	1.20	<1	7.8	126
RA-74	M. Leclerc, East of 5 Mile Creek	68	60	.50	<1	7.8	126
RB-74	M. Leclerc, East of 5 Mile Creek	68	62	.65	<1	7.6	128
RA-75	R. Roussel, Melrose Street	68	61	.60	<1	7.6	126
RB-75	R. Roussel, Melrose Street	68	62	.70	<1	7.7	125
RA-76	G. Gagnon, Lot 100,	68	58	.60	<1	7.7	125
RB-76	G. Gagnon, Lot 100, Melrose St.	68	58	.60	<1	7.6	123
RA-77	Union Water	68	64	.60	<1	7.9	127
RB-77	Union Water	68	64	.75	<1	7.9	128
RA-78	Melrose St.	68	62	.60	<1	7.9	125
RB-78	Melrose St.	68	62	.65	<1	7.6	126

(NOTE: ALL ANALYSES EXCEPT pH AND CONDUCTIVITY REPORTED IN ppm)

SEWAGE DISPOSAL

The results of the detailed bacteriological and chemical sampling of the ditches and creeks in Mattice have been summarized and set-out in Tables 4 and 5 of Appendix 2. Photographs (7) showing the magnitude of the pollution problem within the community and the inadequacy of the present waste water disposal arrangements are set-out in Appendix 3.

(a) Area South of the Canadian National Railway

The area south of the Canadian National Railway is serviced by sanitary sewers which collect domestic wastes from almost all of the homes. The wastes are directed to a communal septic tank located near Five Mile Creek between Queen Street and Balmoral Avenue. The effluent from the tank discharges into Five Mile Creek impairing the water quality in the creek. This is confirmed by comparing the bacteriological results of samples taken upstream and downstream of the outflow point (53-C and 54-C). Water samples from the ditches in the south side of the townsite indicate that some domestic wastes are finding their way into the local roadside ditches. The bacteriological quality of the ditch water was similar to that encountered during the 1970 Ontario Water Resources Commission survey. Sample points which were common to both surveys are compared in Table 3 below.

COMPARISON OF BACTERIOLOGICAL RESULTS FROM 1970 and 1975 FOR ROADSIDE DITCHES AND LOCAL WATERCOURSES (MATTICE)

TABLE 3

	1970		1975	
SAMPLE NO.	TOTAL COLIFORMS Per 100/ml	FAECAL COLIFORMS Per 100/ml	TOTAL COLIFORMS Per 100/ml	FAECAL COLIFORMS Per 100/ml
7-R	2,300	800	200	100
20-R	175	200	56	56
5-C	40,000	8,000	80,000^{+}	1,700
52-C	3,100	600	400	24
2-D	2,100	170	35	16
6-D	40,000	2,100	1,300	350
8-D	70,000	13,000	80,000^{+}	8,000^{+}
9-D	33,000	6,000	80,000^{+}	8,000^{+}
10-D	1,400	160	80,000^{+}	8,000^{+}
12-D	4,000,000	800,000	80,000^{+}	8,000^{+}
14-D	8,000,000	800,000	80,000^{+}	8,000^{+}
18-D	2,000	1,800	7,900	1,600
21-D	50,000	19,000	590	80
22-D	1,500	200	600	500
23-D	500	200	75	26
24-D	6,100	3,000	85	20
25-D	16,000	13,000	1,000	400
26-D	120	40	40	4
28-D	23,000	4,400	1,900	1,900
29-D	1,100	600	80,000^{+}	240
P-1	8,000.000	800,000	80,000^{+}	8,000^{+}

The drainage ditch from the marshy area near the corner of Second and Queen Streets contained elevated levels of coliform bacteria indicating domestic pollution. These coliform organisms may be gaining access to the area from a leak in the sanitary sewer main which passes through the centre of the block between Queen St. and Balmoral Avenue underneath the swampy area.

Water in this and other ditches flows into the Missinaibi River upstream from all pumphouses by way of a ditch at the south end of the playground on Parkview Avenue, thereby adding to the coliform count of the river.

(b) Area North of the Canadian National Railway

In the section of the community north of the Canadian National Railway there is no sewer collector system. Some homes on this side of the tracks utilize private septic tank and tile bed systems for waste water disposal; however, the majority of such systems are malfunctioning due to the clay overburden and it appears that many homes have no tile beds at all. This results in raw sewage flowing into the local roadside ditches causing a significant public health danger as evident by very high coliform bacteria counts, unpleasant odour, lush vegetation growth and unsightly surroundings. The ditches in the north-east section of this portion of the community eventually enter the Missinaibi River by way of a ditch between Second and Third Streets. Samples of the water in all these ditches had very high coliform counts. The ditches in the northwest section of this portion of the community drain into a marshy area near the west end of Melrose Street. The water in all of these ditches and in the marshy area had high total and faecal coliform counts indicating recent pollution from human excrement. The marshy area is heavily covered with duck weed and lush vegetation abounds on the shores.

A ditch drains the flood plain just west of the mouth of Five Mile Creek into the Missinaibi River. The septic tanks at the east end of the north side of Melrose Avenue drain into this ditch resulting in moderately high coliform counts.

The outfall of another septic tank, serving approximately six homes, located near Bob's Esso, discharges directly into Five Mile Creek greatly impairing the quality of the creek water.

The chemical analysis of the water from the ditches in the north section demonstrated that suspended solids exceeded the allowable levels in ditches at the end of Lane St., the corner of Melrose and First Sts., and Melrose St. west of Second Street. Kjeldahl nitrogen readings were excessive in all ditches and watercourses samples in this area. All exceeded the maximum of 0.5 ppm. Total phosporus was also excessive in the north section of the community. Only the one phenol analysis of the sample from the ditch on Melrose St. west of Second Street, was excessive. It was obvious that Bob's Esso was discharging oil into a pipe which runs into the field east of the service station. Since the area was fairly dry at the time of the survey no sample could be taken. The photographs in the Appendix, however, demonstrate that oil is being dumped. Of the cabins located on the east bank of the Missinaibi River, in the northwest corner of the community, only one has a septic tank. The others have outdoor privies.

FIRE PROTECTION

In the community of Mattice there are no fire hydrants for fire protection. Water for fire fighting is obtained from the arena pumphouse and stored in the five trucks. This situation could limit the ability of the fire fighters to combat a major fire.

REFUSE DISPOSAL

A garbage collection service, by a private contractor, is available to the residents of Mattice. Reportedly most residents are patronizing this service. Refuse is hauled to a site presently supplied and maintained by the Ministry of Natural Resources. This site is located approximately one mile northeast of the community.

RECOMMENDATIONS

A) Water Supply

1) Until such time as one communal water supply is available, the present systems should be properly chlorinated. The level of chlorine should be maintained at Ministry of the Environment recommended levels.

2) A communal water supply, treatment facilities and distribution system should be designed and constructed utilizing the best available supply.

B) Sewage Treatment

1) An adequate sewage treatment facility should be constructed to serve the entire community.

2) A sewage collector system should be constructed for the area north of the Canadian National Railway tracks to collect sewage from all sources and transport it to a treatment facility.

3) The sewage collector system south of the Canadian National Railway tracks should be upgraded and all sewage should be collected and transported to a treatment facility.

EV/11

Prepared by: __________________
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District Officer

APPENDIX I

SIGNIFICANCE OF LABORATORY RESULTS

SIGNIFICANCE OF LABORATORY RESULTS

All bacteriological tests were performed at the Ministry of Health Laboratory in Timmins and all routine chemical and phenol tests were performed at the Ministry of the Environment Laboratories in Toronto.

A. BACTERIOLOGICAL EXAMINATION

Total coliform organisms include a variety of bacteria comprised of those of intestinal origin and those originating in the soil. The presence of large numbers of total coliforms in water without high faecal coliform levels may indicate soil runoff or less recent faecal pollution since organisms of the Enterobacter groups tend to survive longer in water than do members of the Eschrichia Coli (E. Coli or Faecal Coliform) group which are found in the intestines of man and warm-blooded animals. They may also multiply when suitable environmental conditions exist.

The presence of faecal coliform organisms is indicative of recent pollution from human and animal excrement as they originate from the intestines of man and warm-blooded animals and have a high death rate outside the body. Faecal coliforms outnumber other coliforms in the body by a ratio of more than 500 to 1. Most of these coliform bacteria are of the genus Escherichia Coli.

B. CHEMICAL ANALYSES

Biochemical Oxygen Demand (BOD)

Biochemical Oxygen Demand is reported in parts per million (ppm), and is usually defined as the amount of oxygen required by bacteria while stabilizing decomposable organic or chemical matter under aerobic conditions. The laboratory test requires five days to complete, at an incubation temperature of 20°C.

Solids

Excessive dissolved solids in water may interfere with its suitability for domestic or industrial use. In general, waters with a total solids content of less than 500 mg/l are desirable. The value for total solids, expressed in parts per million, is the sum of the values for the suspended and the dissolved matter in the water. The concentration of suspended solids is generally the most significant of the solids analysis with regard to surface water quality. The effects of suspended solids in water are reflected in difficulties associated with water purification, deposition in streams, and injury to the habitat of fish.

TOTAL KJELDAHL NITROGEN

Total kjeldahl is a measure of the total nitrogenous matter present except that measured as nitrite and nitrate nitrogens. The total kjeldahl, less the ammonia nitrogen, measures the organic nitrogen present. Ammonia and organic nitrogen determinations are important in determining the availability of nitrogen for biological utilization. The normal upper limit for total Kjeldahl would be 0.5 ppm.

PHOSPHORUS

Phosphorus is a major element of municipal sewage as a result of the utilization of synthetic detergents. To a certain extent, phosphorus is a highly desirable element in maintaining a proper balance between plant and animal life in water. However, excessive and prolonged discharges will upset this balance and create an over-abundance of algae, weeds and nuisance organisms. Excessive growths of algae have been found developing in lakes when the average concentration of inorganic phosphorus was over 0.01 ppm.

PHENOLS

The presence of phenols or phenolic equivalents is generally associated with pollutants containing petroleum products or with some classes of industrial wastes. Adequate protection of surface waters will be assured if the concentrations of phenols or phenolic equivalents in wastes do not exceed 20 parts per billion (ppb).

IRON

Iron concentration limits are not based on physiological considerations since iron in trace amounts is essential for nutrition. Instead the limit is based on aesthetic and taste considerations. The iron concentrations in potable water should not exceed 0.3 ppm to avoid objectionable tastes, staining and sediment formation.

HARDNESS

Hardness is attributed principally to calcium and magnesium ions. Hardness in water may be caused by the natural accumulation of salts from contact with soil and geological formations, or it may enter from direct pollution by industrial wastes. Although the commonly prescribed limiting hardness is 40 mg/l as $CaCO_3$ there is some evidence to indicate that harder water although creating some problem of scaling in pipes may actually contribute to better health.

ALKALINITY

Alkalinity is not considered to be detrimental to humans, but it is generally desirable in moderating pH changes in it may be associated with pH values, high hardness and excessive dissolved solids, all of which may be deleterious.

CHLORIDES

Chlorides may be of mineral origin or may be derived from human and animal sewage or from industrial effluent. Water is classified as acceptable if the chloride concentration is less than 125 mg/l.

APPENDIX II

PHOTOGRAPHS OF THE WATER WORK SYSTEMS

COMMUNITY OF MATTICE

TOWNSHIPS OF EILBER & DEVITT

UNION PUMPHOUSE

FAUCHON PUMPHOUSE

BRISSON PUMPHOUSE

BRUNELLE PUMPHOUSE

SOUTH SIDE PUMPHOUSE

CHRISTIANSON PUMPHOUSE

APPENDIX III

BACTERIOLOGICAL AND CHEMICAL SAMPLE RESULTS

DITCHES AND LOCAL WATER COURSES (1975)

MATTICE

TABLE 4

MATTICE

BACTERIOLOGICAL EXAMINATION OF WATER

ROADSIDE DITCHES AND LOCAL WATERCOURSES

SAMPLE NO.	LOCATION	TOTAL COLIFORMS per 100 mls	FAECAL COLIFORM per 100 mls
	MISSINAIBI RIVER		
7-R	End of 3rd St..	200	100
20-R	West End of Balmoral Ave.	56	56
	FIVE MILE CREEK		
51-C	400' upstream from Communal Septic Tank Outfall	800	34
52-C	100' Upstream from Communal Septic Tank Outfall	400	24
53-C	10' Upstream from Communal Septic Tank Outfall	1,000	100
54-C	100' Downstream from Communal Septic Tank Outfall	$80,000^+$	$8,000^+$
60-C	100' Downstream from Communal (Esso) Septic Tank (Outfall)	$80,000^+$	2,300
5-C	Near Mouth	$80,000^+$	1,700
	DITCH WATER		
2-D	Behind Gulf Station King St. (HWY #11)	35	16
6-D	Into Missinaibi, Between 3rd St. & 5 Mile Creek	1,300	350
8-D	River St., Between 2nd and 3rd Street	$80,000^+$	$8,000^+$
9-D	Melrose St., Near 3rd St.	$80,000^+$	$8,000^+$
10-D	Melrose St., Near 3rd St.	$80,000^+$	$8,000^+$
12-D	Melrose St. and 1st St.	$80,000^+$	$8,000^+$
14-D	Melrose St., West of 2nd St.	$80,000^+$	$8,000^+$
18-D	Balmoral Ave. Between 1st St. and River Road	7,900	1,600

BACTERIOLOGICAL EXAMINATION OF WATER

SAMPLE NO.	LOCATION	TOTAL COLIFORMS per 100 mls	FAECAL COLIFORM per 100 mls
	DITCH WATER		
21-D	Parkview Ave. Between 1st St. and River Road	590	80
22-D	Parkview Ave. & 2nd St.	600	500
23-D	Railway Right of Way, End of 2nd St.	75	26
	Queen St., End of 2nd St.	85	20
25-D	Railway Rt. of Way, Near Queen St., Near End of 3rd St.	1,000	400
26-D	Railway Rt. of Way, Near Queen St., End of 3rd St.	40	4
28-D	Balmoral Ave., Between 2nd and 3rd St.	1,900	1,900
29-D	Parkview Ave., Between 2nd and 3rd St.	$80,000^+$	240
60-D	200' from 5 Mile Creek Across Bridge on East Side	$80,000^+$	$8,000^+$
62-D	Corner of Lane St., End of Alleyway Between King and Melrose	$80,000^+$	$8,000^+$
	MARSH WATER		
P-1	Melrose St.	$80,000^+$	$8,000^+$

SEWAGE ANALYSES

TABLE 5

SAMPLING POINT NO.	LOCATION	5-DAY BOD mg/l	SUSPENDED SOLIDS mg/l	TOTAL KJELDAHL mg/l as N	TOTAL pH	PHENOLS ppb
ST-1	Communal Septic Tank	240	220	39	7.3	
J1-A	Corner of Lane St. Ditch Water	220	3150	110	16	
J1-B	" " " " " "	90	1690	38	12	
7-R	Missinaibi River, End of 3rd St.	0.4	30	1.2	.08	
20-R	Missinaibi River, End of Balmoral	0.2	5	0.8	.02	
5-CA	5-Mile Creek, Near Mouth	2.0	35	1.3	.12	
5-CB	" " " " "	0.8	30	0.9	.06	
52-C	100' Upstream from Communal Septic Tank	0.6	35	1.1	.08	
53-C	10' Upstream from Communal Septic Tank	0.8	25	1.0	.08	
54-C	100' Downstream from Communal Septic Tank	1.0	20	1.4	.08	
60-C	100' Downstream from Esso Septic Tank Outfall	1.4	40	1.2	.10	
2-D	Ditch Behind Gulf Station King St.	0.6	35	1.0	.04	
6-D	Ditch Flowing into River Near 5-Mile Creek	18	100	6.0	4.0	
8-D	Ditch on River St. Between 2nd & 3rd St.	6.0	25	2.6	.72	
9-D	Ditch on Melrose Near 3rd St.	8.0	40	3.0	.50	
9-DA	" " " " " "	12	15	2.0	.40	
9-DB	" " " " " "	60	405	9.5	1.7	
10-D	Ditch on Melrose Near 3rd St.	24	130	3.7	.50	
12-D	Ditch on Melrose St. and 1st St.	80	1500	70	12	
14-D	Ditch on Melrose St. West of Second Street	0.8	45	0.8	.34	
18-D	Ditch on Balmoral Ave. Between 1st & River St.	1.2	50	0.7	.08	
21-D	Ditch on Parkview Ave. Between 1st & River St.	1.2	50	0.7	.08	
22-D	Ditch on Parkview Ave. & 2nd St.	0.8	10	1.2	.02	
23-D	Ditch, Railway Right of Way End of 2nd St.	0.8	35	0.6	.06	
24-D	Ditch, Queen St. End of 2nd Street	1.6	150	1.7	.34	
25-D	Ditch, Railway Right of Way, End of 3rd St.	0.8	165	0.8	.14	
26-D	Ditch, Railway Right of Way, End of 3rd St.	0.6	35	3.8	.04	
28-D	Ditch, Balmoral Ave., Between 2nd & 3rd St.	0.4	10	1.4	.02	
29-D	Ditch, Parkview Ave. Between 2nd & 3rd St.	0.4	10	1.0	.04	
60-D	Ditch, 200' From 5-Mile Creek Across Bridge on Exist	1.0	15	1.6	.36	
P-1	Marsh Water, Melrose St.	450	490	74	19	1

APPENDIX 4

PHOTOGRAPHS SHOWING THE PROBLEMS PRODUCED BY WASTE WATER DISPOSAL IN MATTICE

COMMUNAL SEPTIC TANK SERVING SOUTH SIDE OF CNR

- downhill view looking east, showing area where effluent from tank enters Five Mile Creek

-uphill view looking west, showing a section of the septic tank.

DITCHES

-Ditch at corner of Melrose St., and 1st St. 12-D

TOTAL COLIFORM	TOTAL FAECAL	5DAY BOD	SUSPENDED SOLIDS	TOTAL KJELDAHL	TOTAL PHOSPHORUS
80,000$^+$	8,000$^+$	80	1500	70	12

-Ditch on Melrose St. West of 2nd St. 14-D

TOTAL COLIFORM	TOTAL FAECAL	5DAY BOD	SUSPENDED SOLIDS	TOTAL KJELDAHL	TOTAL PHOSPHORUS	PHENOLS
80,000$^+$	8,000$^+$	130	770	55	9.0	40 ppb

- Ditch on Melrose St., West of 3rd St. 10-D

TOTAL COLIFORM	FAECAL COLIFORM	5 DAY BOD	SUSPENDED SOLIDS	TOTAL KJELDAHL	TOTAL PHOSPHORUS
80,000$^+$	8,000$^+$	24	130	3.7	.50

- Ditch on corner of Lane St., end of alleyway between King and Melrose

TOTAL COLIFORM	FAECAL COLIFORM
80,000$^+$	8,000$^+$

- Suspected oil outfall pipe from Bob's Esso

- Outfall pipe showing Esso Station in Background

-Close-up of oil outfall pipe

- Marsh near west end of Melrose St.
- drains ditches in north-west section of community including 12-D and 14-D

TOTAL COLIFORMS	FAECAL COLIFORMS	5 DAY BOD	SUSPENDED SOLIDS	TOTAL KJELDAHL	TOTAL PHOSPHORUS
80,000$^+$	8,000$^+$	450	490	74	19

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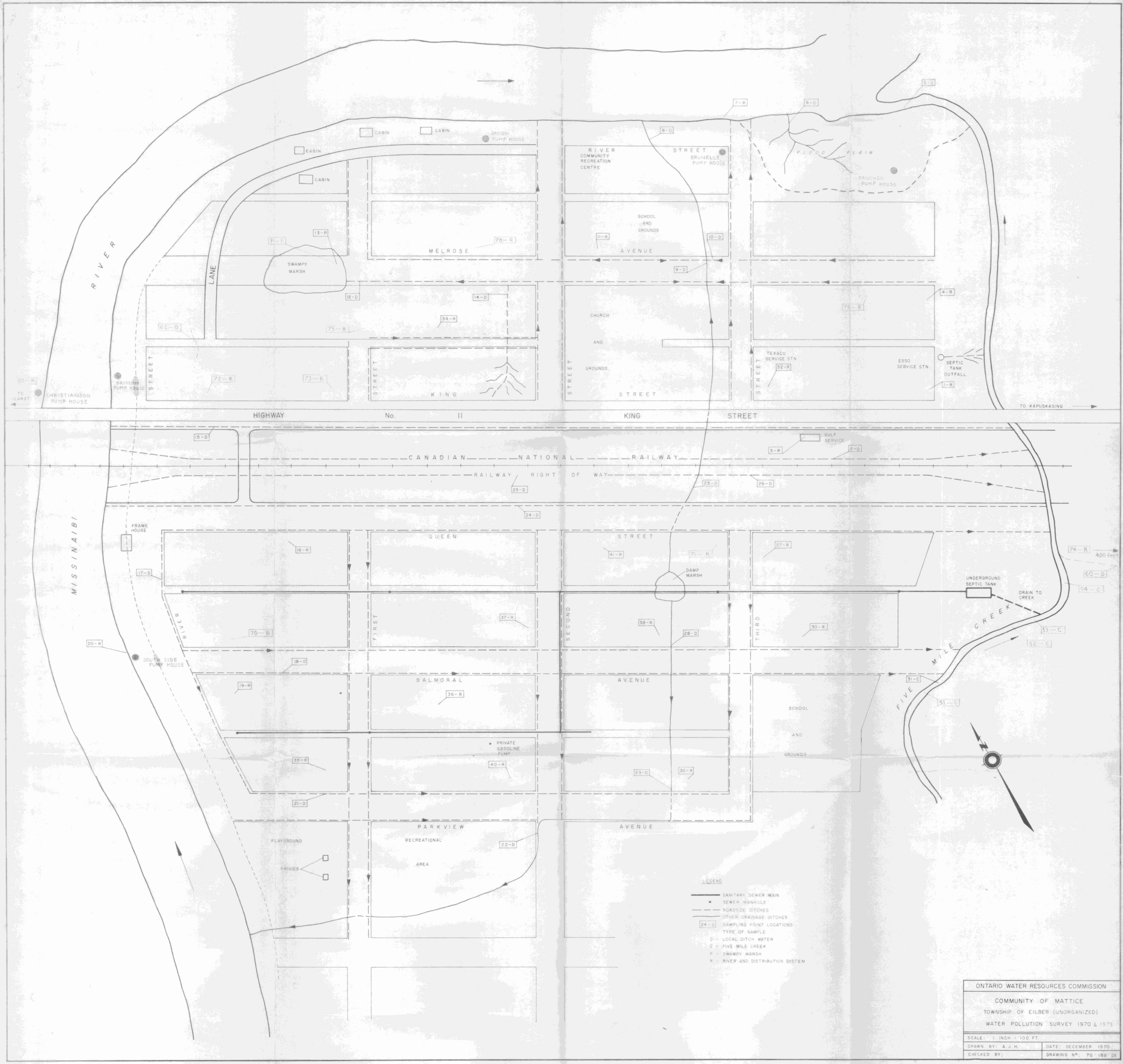
TERMINAL STREAM.

DATE	ISSUED TO

BRODART CAT. No. 23-115 PRINTED IN U. S. A.



ONTARIO WATER RESOURCES COMMISSION

COMMUNITY OF MATTICE
TOWNSHIP OF EILBER (UNORGANIZED)
WATER POLLUTION SURVEY 1970 & 1975

SCALE: 1 INCH = 100 FT.
DRAWN BY: A.J.H.
DATE: DECEMBER 1970
CHECKED BY:
DRAWING Nº: 70-188-DE